

Appl. No. 10/626,758
Amtd. dated June 19, 2006
Reply to Office Action of April 19, 2006

REMARKS

In response to the Final Office Action dated April 19, 2006, Applicants respectfully request reconsideration based on the following remarks. Applicants respectfully submit that the claims as they presently stand are in condition for allowance.

Claims 1-12 are pending in the present application and claims 1 and 7-11 have been rejected. Claims 2-6 and 12 have been objected to, but have been indicated as being allowable but for their dependence on rejected base claims. Applicants are grateful for indication of the same. Claims 1-12 remain for consideration upon the entry of the present Response. No new matter has been added.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 7, 8, 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shin (U.S. Patent No. 6,661,181) in view of Jang (U.S. Patent Application Publication No. 2001/0011980) for the reasons stated on pages 2-5 of the Detailed Action. Applicants respectfully traverse.

Regarding claim 1, the Examiner alleges that Shin teaches an apparatus of driving a liquid crystal display comprising: first and second lamp units (223a, b); a first transformer (T1) including a primary side and a secondary side having a first terminal connected to the first lamp unit (223a) and a second terminal; a second transformer (T2) including a primary side and a secondary side having a first terminal connected to the second terminal of the secondary side of the first transformer (T1) and a second terminal connected to the second lamp unit (223b) in column 10, lines 42-48. The Examiner admits that Shin does not teach a voltage sensor, but states that Jang teaches a voltage sensor (24) for sensing a voltage at a middle point in section [0022].

On the contrary, it is respectfully submitted that Shin fails to teach or suggest "*a second transformer including a primary side and a secondary side having a first terminal connected to the second terminal of the secondary side of the first transformer*" as recited in claim 1, and similarly claimed in claim 11. Instead, Shin discloses a first terminal of the secondary side of the second transformer (T2) and the second terminal of

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the secondary side of the first transformer (T1) both connected to a stabilization circuit (227, 235). [See FIGS. 8, 9, 18 and 21 of Shin.]

Thus, independent claims 1 and 11, including claims depending therefrom, i.e., claims 2-10 and 12, define over Shin.

Further, it is respectfully submitted that use of the voltage sensor of Jang does not cure the deficiencies noted above with respect to Shin. Moreover, it is respectfully submitted that although Jang discloses the voltage sensor, Jang fails to teach or suggest the "*sensing a voltage at a middle point between the second terminal of the secondary side of the first transformer and the first terminal of the secondary side of the second transformer*" as recited in claim 1, and similarly claimed in claim 11.

In particular, neither Shin, nor Jang teach or suggest, either alone or in combination, a second transformer including a primary side and a secondary side having a first terminal connected to the second terminal of the secondary side of the first transformer and a second terminal connected to the second lamp unit; . . . and a voltage sensor for sensing a voltage at a middle point between the second terminal of the secondary side of the first transformer and the first terminal of the secondary side of the second transformer, as in claim 1.

In like manner, neither Shin, nor Jang teach or suggest, either alone or in combination, wher cin the sccondary sides of the first and the second transformers are connected to each other to form a neutral point, and the lighting unit further comprises a voltage sensor for sensing a voltage of the neutral point, as in independent claim 11. Thus, independent claims 1 and 11, including claims depending therefrom, i.e., claims 2-10 and 12, define over Shin in view of Jang.

Furthermore, the Examiner alleges that it would have been obvious to one skilled in the art at the time of the invention was made to combine the voltage sensor (24) of Jang with the driving apparatus of Shin in order to prevent white screen error. However, it is respectfully noted that the present invention is not concerned with white screen error as taught in Jang. Moreover, even if the driving apparatus of Shin is modified to include the voltage sensor (24) of Jang as suggested by the Examiner, the applicants' device does not result and would not solve the problem identified by the

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present invention. The combination of Shin and Jang would provide a driving apparatus that prevents white screen error.

More specifically, Jang discloses white screen error at paragraph [0013] and states the when the delay time (between the output power source voltages, specifically the first and second output power source voltages that are applied to the gate-line driving circuits, and the data signals that are respectively applied by the DC/DC converter 16 and the interface 10) is too long, the output power source voltage is applied to the gate-line driving circuit too long without the display data signals being applied to the data-line driving circuit. In that abnormal case, an over-current is applied to the gate electrode of the TFT in the LCD panel such that a surge protector or breaker of the DC/DC converter powers down all of the output power source voltages. And as a result, while a backlight is still illuminating, there exists no image data displayed on the LCD panel such that only a white color is shown to users, which is called as the white-screen error. The white screen error continues until the users turn off the main power for the desktop computer.

In particular, paragraph [0042] of Jang discloses that the solution to the above problem includes a voltage detector 24 detecting the output power source voltages from the DC/DC converter 16 and applies feedback signals to the interface controller 12. More specifically, Jang teaches that the voltage detector 24 preferably includes a transistor Q1, and first and second resistors R1 and R2. Paragraph [0041] discloses that one of the output power source voltages from the DC/DC converter 16 is connected with a gate electrode "G" of transistor "Q1" through a first resistor "R1." A source electrode "S" of the transistor Q1 is connected to a ground, and a drain electrode "D" is connected to two lines, such that a first line is connected through the second resistor "R2" with a main power source voltage, for example 3.3 VDC, that is input to the DC/DC converter 16, while a second line is connected with the interface controller 12.

Moreover, paragraph [0042] of Jang discloses that "[v]arious modifications will be applicable to the voltage detector 24, if only the above-mentioned operation can be achieved." (Emphasis added.) Thus, Jang does not teach or suggest, and in fact teaches away from, the voltage detector 24 modified to sense a voltage at a connection point between terminals from respective secondary sides of respective first and second transformers, as claimed in the instant application.

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More specifically, although Jang discloses the voltage sensor (24), Jang fails to teach or suggest, and in fact teaches away from, sensing voltage at a middle point between the second terminal of the secondary side of the first transformer and the first terminal of the secondary side of the second transformer, as in independent claim 1 and similarly claimed in independent claim 11. Thus, claims 1 and 11, including claims depending therefrom, i.e., claims 2-10 and 12, define over Shin in view of Jang..

In summary and said differently, **Shin**, as shown in Fig. 8 includes a controller CT1, a transformers T1 and Ts, ballast capacitors C1 and C2 connected to coils of the transformers T1 and T2, respectively, lamps 223a and 223b connected to the ballast capacitors C1 and C2, respectively, and a stabilizing circuit 227 connected remaining coils of the transformers T1 and T2, respectively. The stabilizing circuit 227 receives a feedback current through secondary coils of transformers T1 and T2 to stabilize operations of the lamps 223a and 223b.

Jang includes a voltage detector 24 having a first resistor connected between a gate terminal of a transistor Q1 and a DC/DC converter 16, a second resistor R2 connected a drain terminal of the transistor Q1 and an LCD controller 14. The voltage detector 24 senses a voltage from the DC/DC converter 16 to output it to an interface controller 12 as a feedback signal, to alarm abnormal operations of an LCD such as a white-screen error through an alarm device 26.

Accordingly, **Shin** does not disclose a feature of "a second transformer including a primary side and a secondary side having a first terminal connected to the second terminal of the secondary side of the first transformer" as specified in claims 1 and 11. In addition, the voltage detector 24 of Jang has a different structure from "a voltage sensor for sensing a voltage at a middle point between the second terminal of the secondary side of the first transformer and the first terminal of the secondary side of the second transformer" as specified in claims 1 and 11. Furthermore, the voltage detector 24 of Jang senses a driving voltage from the DC/DC converter 16, to alarm image quality errors based on the driving voltage, but the voltage sensor of the present invention is for controlling shutdown of an inverter. Thereby, since fields of inversion are different from

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the voltage detector 24 of the Jang and the voltage sensor of the present invention, it is difficult to apply the voltage detector 24 of the Jang to the present invention.

Accordingly, it is respectfully requested that the rejections to claims 1, 7, 8, 10 and 11 under § 103(a) be withdrawn.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shin (U.S. Patent No. 6,661,181) in view of Hsu (U.S. Patent No. 6,812,921) for the reasons stated on page 5 of the Detailed Action. Applicants respectfully traverse.

It is respectfully pointed out that claim 9 depends from claim 1, which is submitted as being allowable for defining over Shin as discussed above. Moreover, it is respectfully submitted that use of first and second resistors connected to first and second lamp units, respectively, as allegedly taught in Hsu, does not cure the deficiencies noted above with respect to Shin. Therefore, it is respectfully submitted that claim 9 defines over Shin in view of Hsu.

Applicants further traverse the rejection on the grounds that Jang is non-analogous art. For the purposes of evaluating obviousness of claimed subject matter, the particular references relied upon must constitute "analogous art". *In re Clay*, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992). The art must be from the same field of endeavor, or be reasonably pertinent to the particular problem with which the inventor is involved. *Id.* As stated above, a solution to white screen error as disclosed in Jang is not reasonably pertinent to the problem of preventing arcs and burning of a transformer, as discussed in the present application.

Accordingly, it is respectfully requested that the rejections to claim 9 under § 103(a) be withdrawn.

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Conclusion

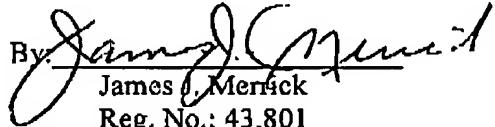
In view of the foregoing remarks, Applicants submit that this application is in condition for allowance. Early notification to this effect is requested.

The Examiner is cordially invited to contact Applicants' Attorneys at the below-listed telephone number regarding this Response or otherwise regarding the present application.

If there are any charges due in connection with this response, please charge them to Deposit Account 06-1130.

Respectfully submitted,

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